Online Research @ Cardiff

This is an Open Access document downloaded from ORCA, Cardiff University's institutional repository: https://orca.cardiff.ac.uk/id/eprint/111741/

This is the author's version of a work that was submitted to / accepted for publication.

Citation for final published version:

Klusacek, P., Alexandrescu, F., Osman, R., Maly, J., Kunc, J., Dvorak, P., Frantal, B., Hlavicek, M., Krejci, T., Martinat, Stanislav ORCID: https://orcid.org/0000-0003-4060-2009, Skokanova, H. and Trojan, J. 2018. Good governance as a strategic choice in brownfield regeneration: Regional dynamics from the Czech Republic. Land Use Policy 73 , pp. 29-39. 10.1016/j.landusepol.2018.01.007 file

Publishers page: https://doi.org/10.1016/j.landusepol.2018.01.007 <https://doi.org/10.1016/j.landusepol.2018.01.007>

Please note:
Changes made as a result of publishing processes such as copy-editing, formatting and page numbers may not be reflected in this version. For the definitive version of this publication, please refer to the published source. You are advised to consult the publisher's version if you wish to cite this paper.

This version is being made available in accordance with publisher policies. See http://orca.cf.ac.uk/policies.html for usage policies. Copyright and moral rights for publications made available in ORCA are retained by the copyright holders.

information services
gwasanaethau gwybodaeth

This is pre-publication author-version of a manuscript which has been published in Land Use Policy, (Accepted 5 January 2018)

The manuscript did undergo copyediting, typesetting, and review of the resulting proof before it was published in its final form. To find or request access to the final version, please see the link https://www.sciencedirect.com/science/article/pii/S0264837717311158

Klusacek, P., Alexandrescu, F., Osman, R., Maly, J., Kunc, J., Dvorak, P., Frantal, B., Havlicek, M., Krejci, T., Martinat, S., Skokanova, H., & Skokanova, H. (2018). Good governance as a strategic choice in brownfield regeneration: Regional dynamics from the Czech Republic. Land Use Policy, 73, 29-39.

Good governance as a strategic choice in brownfield regeneration: Regional dynamics from the Czech Republic

Petr Klusacek[a], Filip Alexandrescu[a,c], Robert Osman[a], Jiri Maly[a], Josef Kunc[a], Petr Dvorak[a], Bohumil Frantal[a], Marek Havliček[b], Tomas Krejci[a], Stanislav Martinat[a], Hana Skokanova[b], Jakub Trojan[a]

[a] Institute of Geonics, Academy of Sciences of the Czech Republic, Brno, Czech Republic
[b]The Silva Tarouca Research Institute for Landscape and Ornamental Gardening, Department of Ecology, Brno, Czech Republic
[c] Romanian Academy, Research Institute for the Quality of Life, Calea 13 Septembrie no. 13, 050711, Bucharest, Romania

Abstract

The application of principles of good governance in brownfield regeneration, for instance through improved transparency and participation of various groups of stakeholders, varies between regions and cities. In this article, we approach good governance as a strategic response of actors in the struggle for creating development opportunities on brownfield land. Good governance has been mostly seen as a normative consideration, but it is not clear why regions with lower development prospects would employ it more than better developed regions, as it recently happened in the Czech Republic. We assume that the public administration at the regional and municipal level plays an active role in devising strategies to attract investors for brownfield redevelopment. This process brings public administrations in interaction with each other and with investors, regulators and civil society groups within a society-wide brownfield redevelopment field. This field is an arena where all these different actors struggle for redeveloping their brownfield land. Regional and municipal administrations from developed regions stand to benefit from their higher economic growth potential and hence have a dominant position within the field. We identify the latter as the incumbents or "power-holders" of the national brownfield regeneration field. Less developed regions have lower attractiveness for brownfield redevelopment, which places them in a subordinate position in the field. They are so-called challengers that are likely to favour alternative strategies for their brownfields, going beyond mere economic attractiveness. By comparing differently developed regions and regional capitals in the Czech Republic, we show how some challengers use good governance, such as responsiveness, participation and transparency, as an alternative strategy to attract investors despite their economic predicament. For regional capitals, however, good governance is practiced both by highly developed and less developed cities. We draw evidence from interviews with key stakeholders and socio-economic data at the regional and municipal level in the Czech Republic. In the conclusion, we show some of the identified limitations in good governance, such as obstacles to participation, responsiveness or transparency, and how they can be recognized and overcome.

Keywords
Good governance, Brownfields, Strategic action field, Public administration, Czech Republic, Self-government

1. Introduction

Good governance is a normative concept which describes a good-quality and proper administration of public goods under conditions of modern democratic decision-making based on respect towards the fundamental rights and freedoms of economic actors. Good governance can also be applied to the administration of public "bads", such as the growing number of brownfields that have emerged with the decline of heavy industries throughout Europe. The concept of good governance has several fundamental characteristics such as accountability, transparency, responsiveness, equitability and inclusiveness, effectiveness and efficiency, the rule of law, participativeness and consensus building (e.g. Recommendation CM/Rec, 2007; UNESCAP, 2009). Good governance is also very important for sustainable development and therefore the Council of Europe includes sustainability among the key principles of good governance at the local level (Valencia Declaration, 2007). In this respect, good governance acts as the motor and political driving force, keeping the different elements of sustainable development in balance (Hall and Pfeiffer, 2000).

However, the application of good governance principles varies significantly between countries, regions and municipalities. In this article, we explain these differences with regard to the management of post-industrial brownfield sites. Our key assumption is that good governance is not only a normative concept, reflecting the historical tendency to open up decision-making process to democractic scrutiny, accountability and the rule of law. Instead, we regard good governance as a strategic response employed by social actors in their competition for promoting development opportunities in urban space. In this approach, social actors are organizations rather than individuals. Public administrations at regional and municipal levels interact among themselves and with investors, regulators and civil society and thus create a society-wide field of strategic action. Such a field is a "meso-level social order where actors […] interact with knowledge of one another under a set of common understandings about the purposes of the field, the relationships in the field [.], and the field's rules" (Fligstein and McAdam, 2011, p. 3). The purpose of the regeneration action field is for regions and cities to maximize development opportunities on brownfield land, while also protecting their greenfield land.

The main positions in such a field are those of incumbents and challengers. Incumbents are actors positioned in such a way as to benefit from the current distribution of power in the field. Challengers are actors in inferior positions who have difficulty in accessing valued resources and often resort to alternative strategies. In these terms, the incumbents are the regions and regional capitals with high economic potential and economic attractiveness and the challengers are the areas with lower attractiveness for investors. The extent to which governance processes are "good" or less so is shaped by the competition over the stakes of the field, rather than solely by abstract ethical considerations.

This article presents the analysis of how specific principles of good governance have been implemented in relation to brownfield regeneration at the regional and municipal level in the Czech Republic. The research considers two sets of variables: one pertaining to the direction of development of a region (socio-economic potential), which can be either shrinking or growing, and the second one related to the deployment of good governance in dealing with brownfield regeneration (high or low). Hence, the main aim of the paper is to describe strategies of local government authorities towards brownfields regeneration depending on the direction of development of particular territories. The research question is thus: "Why do public administrations in different regions and regional capitals include good governance in their strategies to promote brownfield regeneration?" We assume that good governance is a broad-based and inclusive strategy employed by challenger regions and capitals

as a way to compete with economically stronger (incumbent) regions, which have more economic resources to maximize their brownfield redevelopment potential.

The Czech Republic was chosen because it was part of a key industrial hub of the former Soviet economic block. Since the late 1990s, the challenge of managing abandoned or underused industrial land has become a policy priority simultaneously at the national, regional and local levels. Once the redevelopment of brownfields entered the post-socialist development agenda, a multitude of possibilities opened for a variety of actors. Local authorities with brownfield land in prime locations (e.g. inner city areas) could benefit from a regulatory framework that would allow them to capitalize on these highly priced locations (Cook, 2010). Other authorities, however, found themselves in the uneviable situation of having to clean up contaminated sites without the contribution of private sector involvement (Břenek et al., 2014). All these challenges have their indisputable spatial specifics and regional concentrations (Osman et al., 2015).

Brownfields in the Czech Republic are defined as insufficiently used or neglected properties (land, buildings, sites) with potential contamination that originate from previous industrial, agricultural, residential, military or other activities, and which cannot be suitably used unless they undergo regeneration (National strategy of brownfields regeneration, 2008, p. 3). In line with the overall transformation of society, the public administration went through a complex transition especially through gradual decentralization, which involved transferring authority from the central public administration to the regional or municipal levels. Since the Czech Republic joined the European Union (EU) in 2004, the significance of subsidiarity has increased, according to which all measures should be adopted as close to citizens as possible, at the lowest level of public administration which enables their effective realization (Barnett, 2001).

2. Theoretical background

2.1. Brownfield regeneration and public administration

The approach of public administration to brownfields regeneration has been studied at different hierarchic levels of public administration, usually the central, regional and municipal levels. At the central level (individual countries), studies usually compare the situation in various countries (e.g. Rizzo et al., 2015) or they concentrate on the state of brownfields in one country (Osman et al., 2015). For example, the Report on the environment of the Czech Republic in 2013 observes that between 2000 and 2013 the area of built-up and other areas increased by 3.5% (28,700 ha), and these areas, including also recultivated areas after non-agricultural activity, occupied 10.6% of the entire country. Other research uses surveys with various groups of stakeholders, such as state administration and local government to identify the factors of successful brownfields regeneration in the Czech Republic, Germany, Poland and Romania (Frantál et al., 2015b).

At the regional level, data for the regions are used for various supporting instruments that should facilitate the decisions of stakeholders participating in brownfield regeneration. These are the prioritization tools (Cheng et al., 2011; Pizzol et al., 2011, 2016; Zabeo et al., 2011; Agostini et al., 2012), which are created for various groups of end-users including regional planners, regional development agencies, state and regional authorities, grant agencies, etc. Concrete regions are used sometimes as case studies. For instance, the South Moravian Region in the Czech Republic was analysed regarding the occurrence of non-regenerated and regenerated brownfields (Frantál et al., 2013) and regarding the occurrence of agricultural brownfields (Klusáček et al., 2013). Furthermore, the region was explored on the reuse of brownfields for the development of solar energy (Klusáček et al., 2014a) and the data acquired was used to test the TIMBRE prioritization tool (Pizzol et al., 2016), which was modified and tailored according to feedbacks from different groups of end-users, including experts from public administration (Klusáček et al., 2014b).

At the municipal level, analyses for urban and rural municipalities were carried out in the USA (e.g. Chrysochoou et al., 2012; Linn, 2013), Canada (e.g. De Sousa, 2002, 2003), China (e.g. Liu et al.,

2014, Ortiz-Moya, 2015), Germany (e.g. Rall and Haase, 2011), Slovenia (Nastran and Regina, 2016), Czech Republic (e.g. Frantál et al., 2015b; Martinát et al., 2017; Navrátil et al., 2017), Poland (Krzysztofik et al., 2016) and Romania (Stezar et al., 2013). For urban municipalities, the issue of brownfields is often linked to the shrinking cities phenomenon (e.g. Rumpel and Slach, 2012; Hackworth, 2014; Martinát et al., 2014; Safransky, 2014) – which are cities that experience decline and depopulation, often accompanied by neglected sites that had lost their original use. Case studies for rural municipalities are less frequent and they often deal with the analysis of one concrete locality in rural space (e.g. Sardinha et al., 2013; Vojvodíková et al., 2013; Klusáček et al., 2014a). Implications about the place-making of urban space by its re-use by urban farming have been widely discussed by Koopmans et al. (2017).

Regarding stakeholder's research at the municipal level, Tintěra et al. (2014) identified the attitudes of municipal authorities towards brownfields in Estonia. A similar study for the Czech Republic was undertaken by Klusáček et al. (2011), who focused on the attitudes of mayors towards the regeneration of brownfields. The research, which was based on qualitative interviews, found that mayors see the role of local administration in brownfield regeneration more as mediators of conflicts between different stakeholders, rather than as initiators of the process. Furthermore, the mayors also emphasized the necessity to involve stakeholders in the regeneration process from its earliest stages and to cooperate closely at different levels of the public administration (central, regional, municipal).

The regeneration of brownfields presents a complex process in which various groups of stakeholders participate, including individuals, organizations or other entities who either affect directly or are directly affected by brownfield property or its redevelopment (Davis, 2002). The engagement of stakeholders in the process of brownfield regeneration has been recently surveyed by several authors (e.g. Sardinha et al., 2013; Bartke and Schwarze 2015; l et al., 2015a, 2015b; ; Glumac et al., 2015; Osman et al., 2015; Rizzo et al., 2015). In this context, some authors emphasized the key role of sustainability and stakeholder engagement in the process of brownfields regeneration (Alexandrescu et al., 2016a, 2016b; Rizzo et al., 2016), which tries to integrate both the scientific knowledge of various disciplines and non-scientific knowledge (Enengel et al., 2012).

2.2. Good governance as strategic choice

In general, good governance marks a normative shift away from corruption, inefficiency, maladministration, secrecy and red tape to incorporate concerns for accountability, transparency, effectiveness, inclusiveness, fairness and responsiveness (Stoker, 1998). From the perspective of spatial planning, the following fundamental principles of 'good' governance are discussed: accountability, legitimacy, respect, equity, competence, participation and the recognition and validation of local knowledge (McCall and Dunn, 2012). Earth system governance is concerned not only with institutional performance and effectiveness but also with the accountability and legitimacy of decision-making; this relates to all levels of governance from the local to the global (Biermann and Gupta, 2011). In this paper, we focus on three governance principles relevant for brownfield regeneration, which are responsiveness, participation and transparency. These are the same three core principles of governance that are considered particularly relevant for the post-communist space (Stojanovska et al., 2014). Responsiveness is important since ensures that there is symmetry between the rights and duties of brownfield developers, of local authorities and of other stakeholders (Lieberherr-Gardiol, 2008). Bardos et al. (2016) argue that improving transparency of decision making is now regular practice for conceptual site models used in risk assessment and management. Finally, the importance of participation for brownfield redevelopment processes is also crucial because the success of regeneration often depends on the active participation of different groups of stakeholders. Therefore, the new participatory methodologies focus on stakeholders for support of engagement processes (Rizzo et al., 2015) and many articles address participatory planning (e.g. Ataöv, 2006; Peerapun, 2012; Kovács et al., 2016).

This article explains good governance as a strategic response of actors (regional and municipal authorities) based on their positions in the field of brownfield regeneration. Some actors occupy dominant positions in the field, which means that they are in favourable positions to successfully regenerate brownfields. The level of development of their regions (given by a high population density, population growth, high GDP and low unemployment and a high percentage of university educated residents) means that they are attractive hubs for investors. Their well-developed regional economies attract more investors willing to regenerate brownfield sites. Actors in less favourable positions seek to redevelop their brownfields even if their circumstances make them less attractive places to invest. These actors devise alternative strategies for creating development opportunities for their brownfield land. One strategy is to promote good governance through increased responsiveness of public administrations to the challenge of regenerating brownfields, through active participation in sharing information on investment opportunities and transparency on the status of brownfield sites.

3. Methods, materials and case study area

The methodology aimed to describe the approach of the regional governments and regional capitals in the Czech Republic to the regeneration of brownfields depending on the socio-economic potential of each region. The approach to brownfield regeneration in regions with high socio-economic potential is expected to be different from the approach applied in regions with low socio-economic potential. Our initial hypothesis was that the socio-economically stronger regions will approach brownfield regeneration more effectively in terms of good governance than weaker regions. This means a proactive, committed, open, transparent, and sustainable approach.

To this end, a two-phase mixed research design has been used, combining qualitative and quantitative research methods. The first qualitative phase focused on the approach of regional governments and regional capitals to brownfield regeneration as captured by the question: "How do individual regions and regional capitals in the Czech Republic approach brownfield regeneration in their territories?" The key verb of the research question "to approach" was then operationalized in terms of three principles of 'good governance': responsiveness, participation and transparency. Semi-structured interviews were the method of data collection. Respondents were selected by using the following criteria: i) leadership within the relevant regional or municipal authority, ii) responsibility for brownfield regeneration issues, iii) and at least two years of experience with this issue.

The respondents were identified in two stages. In the first, the heads of departments that were more likely to address the brownfield regeneration issues were identified. These were mainly from the departments of city development, regional development, regional planning, strategic development, strategic planning, development and implementation of projects, economic development, marketing, investment opportunities, architecture etc. An e-mail request for an interview, or for a contact person who is in charge of brownfield regeneration within their office, was sent to them. Based on the responses received, a list of potential communication partners who met the chosen criteria was created: they identified themselves as the responsible manager or as being recommended by someone else directly from the local government. This was followed by the contacting stage, when the specific responsible managers were approached by phone and asked to participate in the interview.

The interviews were carried out with representatives of public administration who deal with the brownfields topic at the level of 14 autonomous regions (NUTS 3 level), and with representatives of 13[1] regional capitals (LAU 2 level – see Table 1). The experts from the regional capitals represented the municipal level of public administration, since we assumed that regional capitals can illustrate the situation of other municipalities in the corresponding regions. If the issue was being addressed by more people under one relevant authority, interviews with more experts were done. The interviews were carried out between March and June 2014 and included 26 semi-structured interviews with different actors from regional authorities, regional development agencies and local administrations of

[1] The Regional Authority for Central Bohemia Region is located in Prague.

regional capitals. The main topics discussed were: i) level of responsiveness, ii) level of participation, and iii) level of transparency. The interviews were carried out by five trained interviewers who took field notes, which were then transcribed in electronic form and explored using basic thematic analysis.

Table 1. Examined regions and regional capitals and the number of experts included (number of interviews).

Regions	Experts included	Regional capitals	Experts included
Prague		Prague	3
Central Bohemia		Prague	
South Bohemia	1	České Budějovice	
Plzeň	1	Plzeň	1
Karlovy Vary	2	Karlovy Vary	
Ústí	2	Ústí nad Labem	1
Liberec	2	Liberec	1
Hradec Králové	3	Hradec Králové	1
Pardubice		Pardubice	2
Vysočina		Jihlava	
South Moravia	1	Brno	1
Olomouc	1	Olomouc	
Zlín	1	Zlín	
Moravia-Silesia	1	Ostrava	1
TOTAL	15	TOTAL	**11**

Source: the authors.

The persons responsible for the management of brownfields assessed whether brownfield regeneration has high or low political support among representatives of the local government (level of responsiveness). The level of responsiveness is very important because if political support is low, brownfield sites are expected to be redeveloped by market forces alone. If political support is high, and the public administration sees itself responsive to the regeneration challenge, it will be actively involved in this process. The level of responsiveness is medium if some projects have strong political support but the majority have only low support (see Table 2).

Table 2. Criteria for good governance: responsiveness, participation and transparency.

Criterion	Explanation	Possible values
Responsiveness	Level of political support for regeneration	Low – market forces will take care of brownfields
		Medium – Some projects with high political support & majority with low support
		High – Politicians actively supporting regeneration
Participation	Timeliness of brownfield information	Low – no update since initial data collection (2007)
		Medium – one or two updates since 2007
		High – three or more updates
Transparency	Availability of data both non-regenerated and regenerated brownfields	Low – limited information on a few non-regenerated brownfields & no information on regenerated ones
		Medium – data on 50% of non-regenerated brownfields & on selected regenerated sites
		High – most data on non-regenerated brownfields & higher number of selected successfully regenerated ones.

Source: the authors.

The level of participation of public administrations is measured by the timeliness of brownfield information, that is, the frequency of updates of brownfield databases. The frequency is low if there was no update or no collection of new data since 2007, when the CzechInvest database was created. It is medium if there were one or two updates and high in case of three or more updates.

The level of transparency is given by the availability of data on both non-regenerated and regenerated brownfields for stakeholders. This indicator can be low, when only limited information is available on a low number of non-regenerated brownfields and almost no data on successfully regenerated brownfields. It is medium when about 50% of data on selected non-regenerated brownfields is available along with selected successfully regenerated brownfields. The value is high when most data for non-regenerated brownfields is offered and a higher number of successfully regenerated brownfields are presented. Only cases with data protection are omitted.

The socio-economic (quantitative) component of data collection focused on the socio-economic potential of regions and regional capitals. The guiding question was: “What is the socio-economic potential of individual regions and regional capitals in the Czech Republic?” The socio-economic potential was operationalized using secondary data, mainly census data from 1991, 2001 and 2011. Due to the availability of data for regions and municipalities, the socio-economic potential was operationalized using four common indicators and one specific indicator different for cities and regions. Population change (%), population density (persons/km^2), share of population with university education out of total population aged 15+ (%) and the share of unemployed persons (%) were the common indicators. In the case of regional capitals, the fifth variable was the number of dwellings completed in one year per 1000 inhabitants. For the regions, the corresponding variable was the gross domestic product. At the conclusion of the mixed research design, the results of the two phases were compared and used as a basis for addressing the research question: do stronger (incumbent) or weaker (challenger) regions and regional capitals differ on including good governance as a way to promote brownfield regeneration in their territories?

4. Good governance principles within the process of brownfields regeneration

The issue of brownfields is currently debated across the Czech Republic by public administration authorities. These authorities gather and publicize a great deal of information. Such information is significant regarding the decision-making processes of actors which participate in the process of brownfield regeneration, such as representatives of public administration and self-government, investors, citizens, experts and non-profit organizations. The CzechInvest agency prepared the National Strategy for Regeneration of Brownfields of the Czech Republic (Resolution No. 1100 from August 31, 2005). The main goal was to identify types of sites for potential investments and location of strategic industrial zones and funding for their development from the state budget (CzechInvest, 2008).

The first national database of brownfield sites was based on the national 'Research Study for the Location of Brownfields in the Czech Republic' completed by the CzechInvest agency between 2005 and 2007. The database comprised brownfield sites greater than 1 ha from all regions of the Czech Republic excluding the capital Prague, which was not eligible due to EU structural funds regulations (CzechInvest, 2007). The CzechInvest agency turned to individual regions with a request to conduct a study within their territories. Each region has developed this study in its own way thereby omitting categories of data as illustrated in Table 3. While some regions have created databases with 300 or more cases, other regions have only a few dozen cases. This variability is not due to the different distribution of brownfields between individual regions, but reflects the fact that some regions used the opportunity created by CzechInvest to inventory their brownfield sites whereas others did not.[2]

Table 3. The database of brownfield sites by region.

[2] The results of the research were influenced by the fact that the data in some regions (e.g. Pardubický Region and Region of Vysočina) have not been collected properly and in detail (Klusáček et al., 2013, pp. 551)). The research in some other regions detected only some of the brownfields, and CzechInvest estimated that the number of brownfield sites in the Czech Republic ranges between 8.5 and 11.7 thousand with a total area between 27 and 38 thousand ha (CzechInvest, 2008). In such context it is understandable that in some regions and (usually larger) municipalities the issue of brownfields has started to be dealt with in more detail and more purposefully, in view of regional and local development plans.

Regions	Number of brownfields	Share of region in the total brownfield area (%)	Number of characteristics in database (maximum 15)	Missing characteristic
South Moravia	362	15.42	10	number of buildings larger than 500 m^2, floor area, existing use, transport accessibility, estimation of investment costs for regeneration
Ústí	253	10.78	15	no missing (all possible chracteristics present)
Hradec Králové	244	10.39	12	area, number of buildings in the territory, number of buildings larger than 500 m^2
Moravia-Silesia	236	10.05	15	no missing
Liberec	236	10.05	15	no missing
Plzeň	213	9.07	14	future intentions
South Bohemia	212	9.03	15	no missing
Olomouc	206	8.77	13	floor area, estimation of investment costs for regeneration
Karlovy Vary	200	8.52	12	future intentions, existing use, existing use by land-use plan
Central Bohemia	92	3.92	15	no missing (all possible chracteristics present)
Pardubice	37	1.58	15	no missing
Zlín	35	1.49	8	number of buildings in the territory, number of buildings larger than 500 m^2, built up area, floor area, existing use by land-use plan, estimation of investment costs for regeneration, future intentions
Vysočina	22	0.94	14	estimation of investment costs for regeneration
Prague	–	–	–	no data collected by CzechInvest
TOTAL	2348	100.00	15	–

Source: CzechInvest (2007).

4.1. Approaching brownfield regeneration at the regional level

The post 1989 structural changes affected the regions of the Czech Republic in different ways. The Moravia-Silesian Region and Ústecký Region were among the worst-affected regions, with the most intensive deindustrialization. These also experienced the highest rates of long-term unemployment, with lower-level educated population, while their population is also decreasing. Many respondents from these regions explained their attitude towards brownfields considering the general socio-economic situation in their areas (Table 4) and for this reason some basic statistical characteristics are worth mentioning. The indicator of population growth that is commonly used in the EU when defining shrinking regions (Growing and shrinking regions in Europe, 2013), indicates the thorough depopulation in regions affected by deindustrialization (Ústí Region, Moravia-Silesian Region). It is remarkable that in both regions in the period between 2001 and 2011, the speed of depopulation increased compared to the previous period (1991–2001). Population density that illustrates the differences between heavily urbanized regions (e.g. Moravia-Silesian Region) and rural regions

(South Bohemian Region) may also influence to some extent the interest in brownfields. We initially assumed a proactive strategy towards good governance in the regeneration of brownfields in regions with higher population density than in regions with low density. Further characteristics (gross domestic product, share of unemployed people, share of population in age category 15+ with university education) were also expected to be significant for good governance in brownfield management, given a larger share of educated people and a more creative atmosphere in regions with progressive urban centers. These characteristics, we found out, are not conducive to good governance by themselves.

Table 4. Selected statistical characteristics and the different approaches to brownfields regeneration at regional level of public administration (green = less-developed regions, no colour = medium-developed regions, orange = more-developed regions).

Regions	Area (thousands of km²)	Population change 2011/1991 (%)	Population density 2011 (persons/ km²)	Gross domestic product (2015) EU 28 = 100 (PPS) (%)	Share of unemployed persons in August 2015 (%)	Share of population in age category 15+ with university degree in 2011 (%)	Brownfields published on-line in August 2015 at:						Principles of good governance related to brownfields regeneration		
							National level of public administration		Regional Information Service		Regional level of public administration		Level of responsiveness (political support from representatives of local government)	Level of participation (frequency of brownfields database update)	Level of transparency (amount of information available)
							Abs.	Rel. (%)	Abs.	Rel. (%)	Abs.	Rel. (%)			
Ústí	5.3	-1.9	151.6	67.5	9.2	9.3	60	12.1	5	1.3	119	9.9	High	High	High
Liberec	3.2	1.7	136.7	67.7	6.5	11.0	75	15.1	37	9.9	347	29.0	High	High	High
Zlín	4.0	-2.8	146.3	76.9	5.9	12.0	29	5.8	5	1.3	115	9.6	High	High	High
South Moravia	7.2	1.7	161.7	85.8	6.9	15.8	59	11.9	69	18.4	143	11.9	High	High	High
Moravia-Silesia	5.4	-5.7	222.2	72.2	8.5	12.2	39	7.9	55	14.7	74	6.2	High	High	Medium
Karlovy Vary	3.3	-2.1	89.2	58.8	6.8	8.9	26	5.2	10	2.7	26	2.2	Medium	Medium	Low
Hradec Králové	4.8	-0.9	115.1	76.4	4.9	11.3	35	7.1	32	8.5	40	3.3	Medium	Medium	Low
Prague	0.5	4.5	2558.1	177.9	4.6	26.2	1	0.2	29	7.7	105	8.8	Medium	Medium	Low
Pardubice	4.5	0.6	113.2	70.4	4.9	10.9	33	6.7	26	6.9	56	4.7	Medium	Low	Medium
Vysočina	6.8	-1.6	74.4	71.4	5.7	10.3	28	5.6	23	6.1	98	8.2	Medium	Low	Low
Central Bohemia	11.0	15.8	117.0	80.7	5.5	12.8	25	5.0	21	5.6	23	1.9	Low	Low	Low
Olomouc	5.3	-2.9	119.3	68.5	6.8	12.3	19	3.8	10	2.7	15	1.3	Low	Low	Low
South Bohemia	10.1	0.9	62.5	73.0	4.5	11.8	44	8.9	39	10.4	17	1.4	Low	Low	Low
Plzeň	7.6	2.2	75.4	81.6	4.6	11.8	23	4.6	14	3.7	19	1.6	Low	Low	Low
TOTAL	**78.9**	**1.3**	**132.3**	**87.2**	**6.2**	**13.8**	**496**	**100.0**	**375**	**100.0**	**1 197**	**100.0**	-	-	-

Source: Czech Statistical Office (1991, 2001, 2011, 2017), Analysis of brownfields in Prague (2008), Brownfields v Pardubickém kraji (2007), CzechInvest (2007), Investujte v Jihočeském kraji (2010), Brownfieldy-jmk (2011), Brownfields v Olomouckém kraji (2012), Investiční příležitosti v kraji (2013), Brownfields a greenfields (2014), Brownfieldy Zlínského kraje (2015), Databáze brownfields (2015), Investiční příležitosti v Královéhradeckém kraji (2015), Investiční příležitosti ve Středočeském kraji (2015), Invest-UK (2015), National database of brownfields (2015), RRA Vysočina (2015).

As Table 4 shows, some regions e.g. Liberec, Ústí or Zlín have a lower level of development with their GDP at 2/3 or 3/4 of the EU28 average and unemployment rates close to or above the average. Despite this, they score high on responsiveness, participation and transparency. These regions also publicize more brownfields at the regional level than are available in the national registry (middle columns in Table 4). In contrast, in more developed regions (e.g. Plzeň, South Bohemian or Central Bohemian Regions) the topic of brownfields regeneration is rather marginal with low values on all three indicators. An interesting exception is the South Moravian region that is high both on development and good governance. A possible explanation for this is the influence of Brno within this region, Brno being one of the most active cities in brownfield redevelopment, the geographic position of these regions is depicted in Fig. 1.

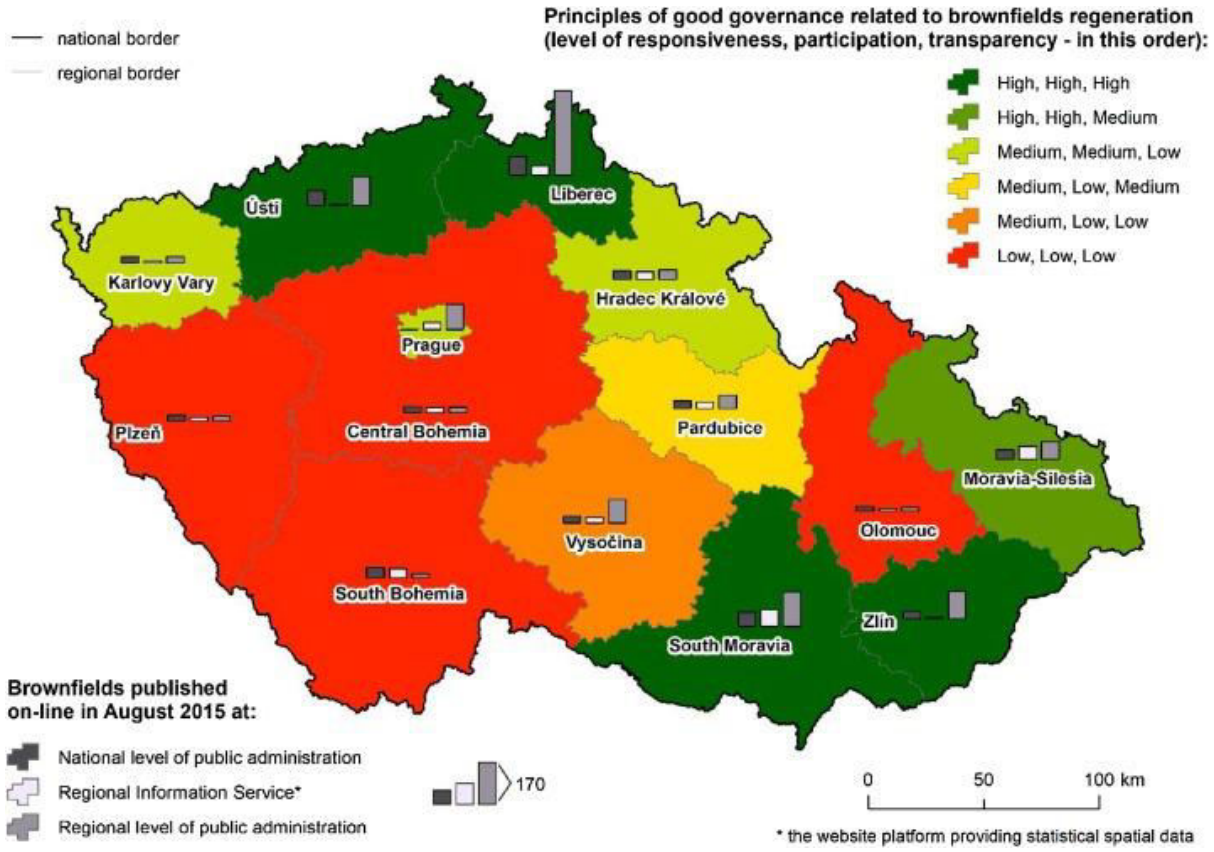

Fig. 1. Differences in applying good governance at the regional level of public administration – the map of Czech regions.

Source: Analysis of brownfields in Prague (2008), Brownfields v Pardubickém kraji (2007), CzechInvest (2007), Investujte v Jihočeském kraji (2010), Brownfieldy-jmk (2011), Brownfields v Olomouckém kraji (2012), Investiční příležitosti v kraji (2013), Brownfields a greenfields (2014), Brownfieldy Zlínského kraje (2015), Databáze brownfields (2015), Investiční příležitosti v Královéhradeckém kraji (2015), Investiční příležitosti ve Středočeském kraji (2015), Invest-UK (2015), National database of brownfields (2015), RRA Vysočina (2015)

There were also regions that are less developed but also low on good governance (no colour entries in Table 4). The interviewees mentioned some of the reasons for this, such as the lack of finance (no EU funding programmes or national funds to support brownfields regeneration), weak political support (it takes more than one electoral term to regenerate one specific brownfield) and small resulting effect of the previous activities (participation in survey for CzechInvest during 2005–2007 did not attract any interested parties in browfields investments). A respondent said that the lack of interest is a logical consequence, as the majority of investors prefer areas with good connection to the motorway network, and this is not possible in the old industrial areas that were operated predominantly by rail, which has lost its importance during the last two decades.

Great attention is paid to the issue of brownfields in such regions which underwent strong deindustrialization (e.g. Ústí, Moravia-Silesian, Liberec or Zlín) or which were affected by the reduction of other sectors. For example, a heavy concentration of agricultural brownfields can be found in South Moravia, which is a region with the best condition for agricultural primary production (Klusáček et al., 2013). Regional authorities in this region tend to be interested in devising strategies for regeneration. In such regions, the significance of the issue is influenced by a high incidence of brownfields, whose number and neglected condition can no longer be ignored. More importantly for our argument, regional authorities regard these brownfields as possible engines for an economic

relaunch and hence devise strategies to capitalize on them. The level of involvement in the issue is further influenced by the question if the area is attractive for investors. In regions less popular for investors (e.g. Ústí Region, Moravia-Silesian Region, Zlín Region), public administration representatives know that market incentives are insufficient to attract private investors. Actions need to be undertaken to attract them, through political responsiveness. In contrast, less active attitudes towards brownfields issue are observed in regions which are very popular for investors (e.g. Plzeň Region bordering the federal state of Bavaria).

The level of transparency differs regionally – in some of the regions, even a small selected group of brownfields is publicised (e.g. 15 brownfields in Olomoucký Region or 17 brownfields in South Bohemian Region). In some of the well-developed regions (e.g. South Bohemian or Plzeň regions), the number of brownfields listed on the website of regional public administration is lower than in the national database of CzechInvest. Moreover, there are no cases of successfully regenerated brownfields. This suggest low transparency and lack of interest. In these regions, merely a fraction of acquired data is announced, the reason being the owners' disagreement with the public exposure, or unresolved property relations (e.g. unclear ownerships of sites). This shows that regional authorities in such regions have failed to establish alliances with some of the regional key actors (brownfield owners). This weakens their position in the country-wide brownfield regeneration field. The structurally disadvantaged Liberec region pays the most attention to brownfields in terms of responsiveness, transparency and participation not only because the number of the publicly available brownfields sites is the highest (347), but because the database of non-regenerated brownfields is updated at least every 2 years and there are special events focused on the different groups of stakeholders (e.g. travelling exhibitions of successfully regenerated brownfields or best practice workshops).

Overall, it seems that public authorities from less developed regions do take additional steps towards good governance. They recognize that the regional market itself will not attract sufficient investment. They cannot compete with the economically stronger regions, which places them in a challenger position. This, however, motivates them to provide political support for regeneration by placing the regeneration of brownfields on the public agenda. They also engage in a high level of participation by updating their brownfield databases and are transparent about the distribution of non-regenerated and regenerated sites. Future research might seek to show if the pro-active attitude of challengers will eventually pay off and if they will be more successful in regeneration compared to their more developed counterparts.

4.2. Approaching brownfield regeneration at the municipal level

In contrast to the role of CzechInvest in creating the initial version of the National database of brownfields, approaches to brownfield regeneration at the municipal level developed spontaneously. The number of small municipalities has increased after 1989 in the Czech Republic and their representatives depended on the support of authorities at higher levels of administration for addressing the brownfields issue. This is illustrated through the analysis of a small micro-region in a heavily industrialized part of North Bohemia (Klusáček et al., 2011). The studied sample of regional capitals (Table 5) differs in their size, population density and the extent to which they were affected by the economic transition. In cities with heavy industry, the impact was the most significant (e.g. Ostrava, Ústí nad Labem), the deindustrialization caused an increase in unemployment and a noticeable decrease in population size, which caused the cities to shrink (e.g. Rumpel and Slach, 2012). The population change indicates that all cities (excluding České Budějovice) had gone through depopulation during 1991–2001. In the next decade, some of the cities increased in population size (e.g. Prague, Brno, Plzeň or Liberec), but in the cities with the biggest impact of deindustrialization (e.g. Ostrava, Ústí nad Labem), the depopulation continued, in some cases even with a higher intensity. Three other indicators (dwellings completed per 1000 inhabitants, share of unemployed people and share of population with university degree) illustrate the current economic situation of the

municipalities: successful urban development on the one hand (Prague, Brno) and economic problems and urban stagnation and decline on the other (Ostrava, Ústí nad Labem).

Table 5. Selected statistical characteristics and the different approaches to brownfields regeneration at municipal level of public administration (green = less-developed cities, no colour = medium-developed cities, orange = more-developed cities).

Regional capitals	Area (km²)	Population change 2011/1991 (%)	Population density in 2011 (persons/ km²)	Dwellings completed per 1000 inhabitants in 2013	Share of unemployed persons in August 2015 (%)	Share of population in age category 15+ with university degree 2011 (%)	Brownfields published on-line in August 2015 at:						Principles of good governance related to brownfields regeneration		
							National level of public administration		Regional Information Service		Regional or municipal level of public administration		Level of responsiveness (political support from representatives of local government)	Level of participation (frequency of brownfields database update)	Level of transparency (amount of information available)
							Abs.	Rel. (%)	Abs.	Rel. (%)	Abs.	Rel. (%)			
Ústí nad Labem	94	-5.3	989.7	0.8	11.4	12.4	2	5.4	0	0.0	61	15.0	High	High	High
Brno	230	-0.6	1 676.5	3.1	7.8	23.6	5	13.5	28	37.3	128	31.4	High	High	High
Ostrava	214	-9.5	1 382.7	1.1	10.3	14.3	9	24.3	8	10.7	71	17.4	High	High	Medium
Liberec	106	1.6	968.6	1.3	7.6	14.9	3	8.1	1	1.3	16	3.9	Medium	Medium	Medium
Prague	496	4.5	2 558.1	3.0	4.5	26.2	1	2.7	29	38.7	105	25.7	Medium	Medium	Low
Olomouc	103	-1.7	977.4	2.5	7.8	20.6	2	5.4	1	1.3	2	0.5	Low	Low	Low
Plzeň	138	-2.0	1 237.2	2.9	4.6	15.8	1	2.7	3	4.0	4	1.0	Low	Low	Low
České Budějovice	56	-3.6	1 685.4	1.5	4.5	17.1	0	0.0	1	1.3	0	0.0	Low	Low	Low
Hradec Králové	106	-5.6	892.4	1.0	5.8	18.1	6	16.2	0	0.0	4	1.0	Low	Low	Low
Pardubice	83	-3.7	1 098.1	1.0	4.3	15.3	7	18.9	1	1.3	8	2.0	Low	Low	Low
Zlín	103	-7.2	732.5	0.6	5.6	17.5	0	0.0	0	0.0	7	1.7	Low	Low	Low
Jihlava	88	-3.4	569.9	2.2	6.2	12.7	1	2.7	3	4.0	2	0.5	Low	Low	Low
Karlovy Vary	59	-3.2	823.2	2.1	6.7	11.8	0	0.0	0	0.0	0	0.0	Low	Low	Low
TOTAL	-	-	-	-	-	-	**37**	**100.0**	**75**	**100.0**	**408**	**100.0**	-	-	-

Source: Czech Statistical Office (1991, 2001, 2011), MPSV (2015), Analysis of brownfields in Prague (2008), Brownfields v Pardubickém kraji (2007), CzechInvest (2007), Analýza brownfieldů (2010), Investujte v Jihočeském kraji (2010), Brno brownfields (2015), Brownfields v Olomouckém kraji (2012), Investiční příležitosti v kraji (2013), Brownfields a greenfields (2014), Brownfieldy Zlínského kraje (2015), Investiční příležitosti v Královéhradeckém kraji (2015), National database of brownfields (2015), RRA Vysočina (2015), Interaktivní tabulka Brownfieldů (2015).

The regional capitals considered approach brownfields in very different ways (Table 5). The biggest cities are among the most active ones (Prague, Brno), together with cities experiencing significant impacts of deindustrialization after 1989 (Ostrava, Ústí nad Labem). This reveals a contrast between developed regions and developed cities. The first tend to be less active while the latter very proactive in dealing with brownfield regeneration needs. It may be that incumbent cities have a higher stake in regeneration, due to high land-use prices, than those on the regional level. Moreover, cities might be interested in channelling the redevelopment of brownfields in specific ways rather than attracting investors based solely on economic criteria. For this reason, good governance may be part of cities' startegies to attract socially responsible investors.

Prague is unique from a methodological perspective, since the Prague City Hall had a detailed study (Analysis of brownfields in Prague, 2008) that identified 105 brownfields within the city. However, during the interviews, representatives of Prague explained that brownfields were dealt with within the wider concept of the transition areas, the number of which is 19 within the capital (Metropolitní plán, 2014). A similar approach was chosen by Plzeň, where a systematic monitoring of all "problematic" areas was performed, and respondents said that brownfields will be marketed as "reconstruction areas" in the upcoming local plan. Brno provides very detailed information using GIS, which enables the end-user to see the newest data from important public databases, such as data concerning current ownership from the land registry office or information about flood areas. Some city representatives (e.g. Pardubice) tried to apply know-how currently used in Brno, a city known for its highly-developed and sophisticated methodology for the regeneration of urban brownfields. This shows that

within the inter-city competition, some incumbents may employ good governance practices (Brno) and raise to the top, which prompts challenger cities such as Pardubice to try to emulate their success. Other challenger cities stay low on good governance (e.g. Olomouc), due to lower levels of deindustrialization and smaller population sizes.

In Ústí nad Labem, information about brownfields was obtained following the Cobraman project (2012), and in Ostrava a long-term collaboration with the Technical University of Ostrava and the participation in the project of Czech Brownfields Partnership (2015) played a key role for good governance. Other regional cities apparently tried to rely on the support of authorities at the national and regional levels, via strategic alliances. This, of course, does not eliminate some partial achievement of municipal self-government when regenerating specific brownfields. For instance, the city of České Budějovice succeeded in regenerating a former military area into a new public park using EU subsidies (Park Čtyři dvory, 2014). However, such forms of regeneration are unusual for the public administration of the cities in the Czech Republic due to their high cost. In general, cities seem more proactive towards good governance strategies than regions and some incumbent and challenger cities adopt this approach. The spatial location of the examined regional capitals is depicted in Fig. 2.

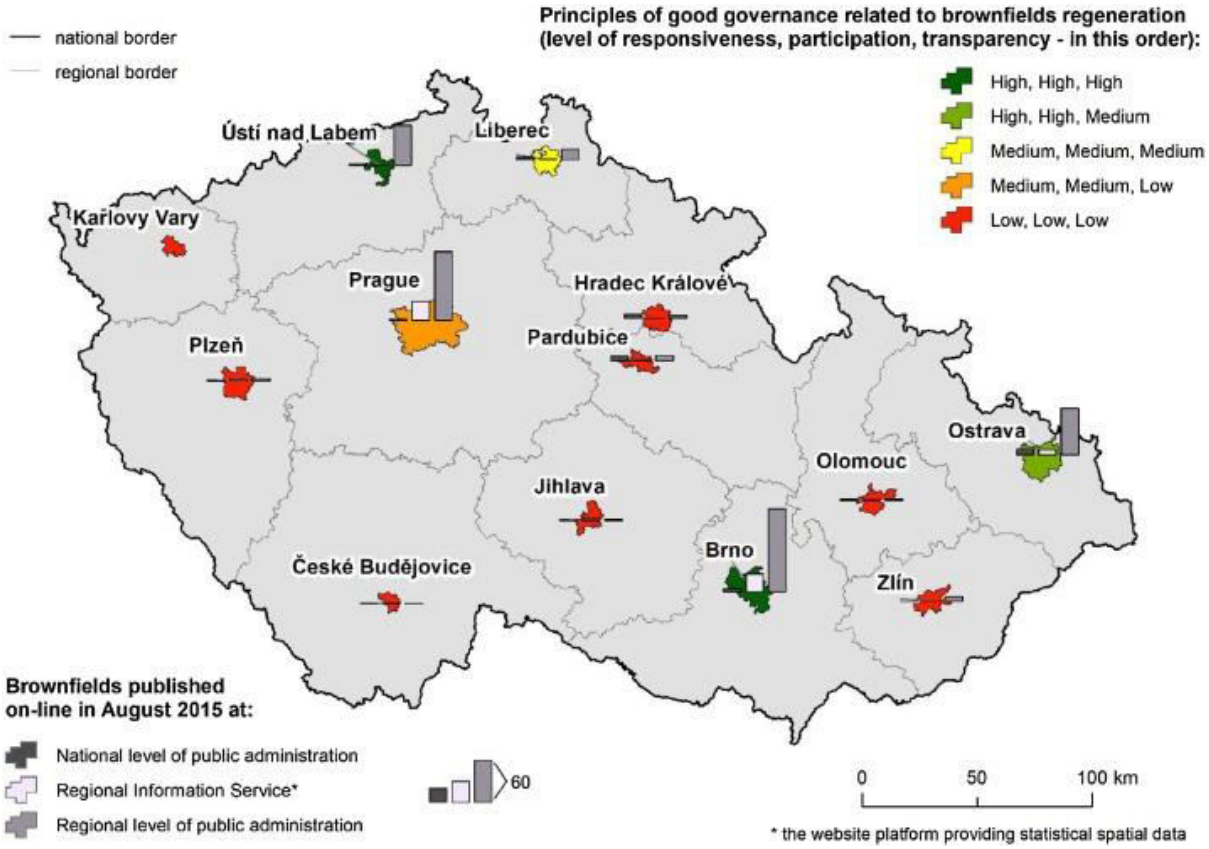

Fig. 2. Differences in applying good governance at the municipal level of public administration – the position of the examined regional capitals in the Czech Republic.

Source: Analysis of brownfields in Prague (2008), Brownfields v Pardubickém kraji (2007), CzechInvest (2007), Analýza brownfieldů (2010), Investujte v Jihočeském kraji (2010), Brno brownfields (2015), Brownfields v Olomouckém kraji (2012), Investiční příležitosti v kraji (2013), Brownfields a greenfields (2014), Brownfieldy Zlínského kraje (2015), Investiční příležitosti v Královéhradeckém kraji (2015), National database of brownfields (2015), RRA Vysočina (2015), Interaktivní tabulka Brownfieldů (2015).

4.3. Brownfields regeneration: principles of good governance and best practices

The above analysis shows that the application of good governance principles in addressing brownfield regeneration in Czech regions and regional capitals is variable. It is obvious that the application of such principles is rather limited in regions where the topic of brownfields is rather marginal. Overall, most of the respondents perceive their effort in a simplified way, and they are mostly directed at the needs of potential investors, gathering and presenting information for them (on the internet, at investment and opportunities fairs, in information brochures and leaflets, etc.). This amounts to addressing only the participation and transparency aspects of good governance. In some cases (Central Bohemian Region) they do not even differentiate between brownfields and greenfields, and both types of areas are offered together as investment opportunities. In e Central Bohemia, such an approach seems rather short-sighted, given that it is a region with the most intensive impact of suburbanization in the Czech Republic (Ouředníček, 2007; Suburbanization and social infrastructure, 2012).

In contrast to approaches catering solely to investors, there are approaches which try to address more groups of stakeholders. As it was mentioned during some of the interviews, political support – the responsiveness aspect of good governance – is influenced by the will of politicians and voters as well. If there is a lack of information about brownfields, it cannot be expected that voters will pressure their representatives to solve the brownfields issue effectively and transparently. Regions and regional capitals that intensively communicate with different groups of stakeholders are undoubtedly Liberec Region, South Moravian Region and the city of Brno, but for different reasons. The former two are in a challenger position and in need to capitalize on their brownfield "heritage" at the regional level. The lack of economic attractiveness of their brownfields requires a broader-based governance effort, reflected in their more supportive and open practices. Brno, on the other hand, is in an incumbent city seeking to cement its advanced and functional information systems in relation to other cities. These administrative units can be considered as cases of good practice for other regions and regional capitals in the Czech Republic, and for other self-governing regions and cities in other countries. From the interviews, several generally applicable good practices for stakeholder communication are distilled:

i) *Access to regularly updated information on brownfields on the internet* – data about brownfields is regularly updated and the end-users are provided with varied information on the current situation of brownfields;

ii) *Creating interactive on-line and user-friendly databases of non-regenerated brownfields* – databases enable elementary prioritization and the end-users can easily choose a smaller subgroup or subgroups of brownfields using different criteria or combinations thereof (e.g. land area, number of owners, original use, recommended use);

iii) *Access to information concerning cases of good practice of successfully regenerated brownfields* – such cases may inspire actors in other localities;

iv) *Organizing special events for the public–e.g. travelling exhibitions* – such events play an important educational role for the wider public and thus influence public opinion;

v) *Publishing specialized brochures and manuals for owners* – brochures inform the owners about the main stages of the regeneration process and include applicable recommendations, advice and instructions;

vi) *Organising seminars, workshops and discussion meetings*– all are important as different types of stakeholders can exchange their experience;

vii) *Cooperation with non-profit organizations, associations or creative individuals when regenerating concrete brownfields*– cooperation with non-profit organizations is important since it creates networks for sharing relevant experience.

The above mentioned list is merely illustrative. The negotiations among actors are not without difficulties, and for specific brownfields it might be even highly controversial. In Brno, the controversial case of the Southern centre (see Kunc et al., 2014), is connected to the potential translocation of the railway station, thereby pitting stakeholders against each other (Durnova, 2013). On the application of good governance principles, it appears that small cities in the Czech Republic can effectively and transparently communicate with various groups of stakeholders. Ústí nad Orlicí (population 14.4 thousands, 2011) is successfully collaborating on the preparation of regeneration alternatives for the former textile factory called Pearl under the motto: "The pearl is alive!" (Osman, 2014).

5. Conclusions

Apart from the good practices outlined above, several deficiencies and problems were identified. We conclude the article by summarizing them as they can be reflexively considered by scholars and practitioners alike. In this way, they have wider applicability at regional and municipal levels in Europe:

i) *Unsatisfactory involvement when dealing with the issue of brownfields regeneration (limited participation)* – some representatives of public authorities may excuse their lack of activity by invoking lack of political support or lack of voter interest. A systematic effort and certain patience are recommended, since it takes usually more than one electoral term to produce results from brownfield regeneration. The involvement clearly depends on how actors define the stakes in relation to brownfield regeneration. Good governance assumes and works towards a broader engagement of stakeholders.

ii) *Insufficient dialogue with various groups of actors participating in the regeneration process (limited participation)* – simplified perception of brownfields issue focused solely on the investors does not produce desired results. It needs to include a supportive and, participative approach to various groups of stakeholders and to insert a certain amount of energy in the dialogue.

iii) *Insufficient dialogue among authorities on various levels of public administration (limited responsiveness)* – the dialogue among the authorities of public administration can be slowed in some cases. The same locality with brownfields can have different data on different information platforms. This can be highly confusing for the end-user, who does not know which information is real. This shows that local-level stakeholders need to work with various brownfield registries to harmonize their information.

iv) *One-sided form of dialogue (limited participation)* – complaints were made about the higher levels of public administration, which often demand some information, but the authorities on lower levels do not inform them whether such information is applied effectively. In such a case, cross-level engagement of stakeholders at municipal and national scales is essential.

v) *Overestimating the role of experts and politicians (limited participation)* – it was claimed that the issue of brownfields is too complex for non-professional publics and thus that transdisciplinarity is not necessary. Recognizing that the competence of experts (or politicians) who decide what should be done is not sufficient, a broader involvement of non-expert publics is recommended.

vi) *An attempt to conceal some information (lack of transparency)* – in some cases there was an attempt to conceal information and thus avoid criticism, sanctions and further possible problems by public administrations. The early involvement of potentially critical stakeholders needs to be ensured. This can help dispel conflicts in their early stages rather than allowing them to build up over time.

vii) *Discontinuity when dealing with the brownfields issue influenced by the decision-making process* – it became apparent that the ideas of modern public administration and good governance are

employed only in some regions and regional capitals, while in other regions and regional capitals, the principles of standard bureaucratic public administration are used. The competent authorities and actors need to be not only as transparent as possible, but, in accordance with good governance principles, they also toned to devise effective ways to involve various groups of stakeholders in the process of brownfields regeneration. Such progressive administrative units might thus inspire other self-governing regions and cities in the Czech Republic and in other EU member states.

From the empirical analysis it follows that economic indicators do not adequately reflect the quality of governance in all circumstances. A high level of development does not determine the adoption of good governance. We were able to identify some regions which, although well developed in terms of GDP or employment, do not score high on the quality of their brownfield governance, as reflected in increased responsiveness, participation and transparency. On the contrary, it can be argued that their incumbent positions might reduce their interest in cultivating the principles of good governance. From this perspective, when promoting good governance in brownfield regeneration via regional policies, both less and more developed regions need to be targeted. The former would be empowered to build broad-based consensus on brownfield regeneration as a source of economic development. The latter would be enabled to optimize their regeneration activities for broader societal benefits beyond narrow economic considerations. Regional or cohesion policies would thus not only have to support the development of the less developed regions, but could also spread the benefits of regeneration in the most developed regions.

Strategic action field theory enables us to hypothesize how the future the brownfield regeneration field might evolve in the future. Regions such as those with a reasonable level of market-based investment in brownfield redevelopment and enjoying incumbent positions might lose their edge in the long run if they continue to neglect good governance practices. Less developed but highly proactive cities and regions – currently in challenger positions but practicing good governance – may elevate their standing over the following years, some of them possibly becoming leaders in the regeneration of brownfield land. Finally, incumbent cities such as Brno are likely to maintain their positions, while those emulating them (e.g. Pardubice or the South Moravian region) might also share in this advantage.

The gradual decentralization in brownfield management that has occurred in the Czech Republic can inspire the participants from countries which have not yet experienced similar developments in the field of public administration. This includes EU member states joining the EU after the Czech Republic, or some EU candidate countries. These findings may also be interesting for public administrations with limited experience in brownfield regeneration (Tintěra et al., 2014). The significance of this issue is not only growing in the EU, but also in other regions, as brownfield regeneration presents an increasingly needed alternative to development on greenfield land, which often leads to the overbuilding of the landscape. The topic is thus highly important for the protection of environmental and land resources (e.g. Brombal et al., 2015; Fernández-Getino and Duarte, 2015).

Acknowledgements

This paper was supported by the Czech Science Foundation (Geography of recycling urban space, 17-26934S) and by institutional support the Silva Tarouca Research Institute (VUKOZ-IP-00027073). The authors are very thankful for this support.

References

P. Agostini, L. Pizzol, A. Critto, M. D'Alessandro, A. Zabeo, A. Marcomini Regional risk assessment for contaminated sites part 3: spatial decision support system Environ. Int., 48 (2012), pp. 121-132

F. Alexandrescu, E. Rizzo, L. Pizzol, A. Critto, A. Marcomini The social embeddedness of brownfield regeneration actors: insights from social network analysis J. Clean. Prod., 139 (2016), pp. 1539-1550, 10.1016/j.jclepro.2016.09.007

F. Alexandrescu, L. Pizzol, A. Zabeo, E. Rizzo, E. Giubilato, A. Critto Identifying sustainability communicators in urban regeneration: integrating individual and relational attributes J. Clean. Prod. (2016), 10.1016/j.jclepro.2016.09.076

Analýza brownfieldů, 2010. http://www.usti-nad-labem.cz/files/Analyza.pdf.

Analysis of brownfields in Prague, 2008. [online] available from: http://www.prahafondy.eu/cz/oppk/dokumenty/analyzy.html.

A. Ataöv Democracy to become reality: participatory planning through action research Habitat Int., 31 (3) (2006), pp. 333-344, 10.1016/j.habitatint.2007.04.002 ISSN 0197-3975

R. Břenek, A. Santarius, V. Hudeček Decontamination of a waste dumpside of s.p. DIAMO Acta Montan. Slovaca, 4 (1) (2014), pp. 15-21

R.P. Bardos, S. Jones, I. Stephenson, P. Menger, V. Beumer, F. Neonato, L. Maring, U. Ferber, T. Track, K. Wendler Optimising value from the soft re-use of brownfield sites Sci. Total Environ., 563 (2016), pp. 769-782, 10.1016/j.scitotenv.2015.12.002 ISSN 0048-9697

C. Barnett Culture, policy, and subsidiarity in the European Union: from symbolic identity to the governmentalisation of culture Political Geogr., 20 (4) (2001), pp. 405-426

S. Bartke, R. Schwarze No perfect tools: trade-offs of sustainability principles and user requirements in designing support tools for land-use decisions between greenfields and brownfields J. Environ. Manage., 153 (2015), pp. 11-24

F. Biermann, A. Gupta Accountability and legitimacy in earth system governance: a research framework Ecol. Econ., 70 (11) (2011), pp. 1856-1864, 10.1016/j.ecolecon.2011.04.008 ISSN 0921-8009

Brno brownfields, 2015. http://gis5.brno.cz/flex/flexviewer/index.php?project=gismb_brownfields_public.

D. Brombal, H. Wang, L. Pizzol, A. Critto, E. Giubilato, G. Guo Soil environmental management systems for contaminated sites in China and the EU Common challenges and perspectives for lesson drawing Land Use Policy, 48 (November(1)) (2015), pp. 286-298

Brownfields a greenfields, 2014. http://regionalni-rozvoj.kraj-lbc.cz/page3531/english-version.

Brownfields v Olomouckém kraji, 2012. https://www.kr-olomoucky.cz/data/clanek/125/dokumenty/bfo-cz-100.pdf.

Brownfields v Pardubickém kraji, 2007. https://www.pardubickykraj.cz/brownfields/45137/brownfields-v-pardubickem-kraji.

Brownfieldy Zlínského kraje, 2015. https://vms4. kr-zlinsky.cz/ost/bf/.

Brownfieldy-jmk, 2011. http://www.brownfieldy-jmk.cz/.

F. Cheng, S. Geertman, M. Kuffer, Q. Zhan An integrative methodology to improve brownfield redevelopment planning in Chinese cities: a case study of Futian Shenzhen. Comput. Environ. Urban Syst. Sustain. Urban Dev., 35 (2011), pp. 388-398

M. Chrysochoou, K. Brown, G. Dahal, C. Granda-Carvajal, K. Segerson, N. Garrick, A. Bagtzoglou A GIS and indexing scheme to screen brownfields for area-wide redevelopment planning Landscape Urban Plann., 105 (3) (2012), pp. 187-198

Cobraman, 2012. [online] Available at: http://www.cobraman-ce.eu/.David H. Cook The gratuitous form of acceptance as the pathway to the resolution of substance abuse (Acceptance) Int. J. Sociol. Social Policy, 30 (9/10) (2010), pp. 499-514, 10.1108/01443331011072262

Czech Brownfields Partnership, 2015. [online] Available at: http://fast10.vsb.cz/brownfield/en/.

Czech Statistical Office Census 1991 (1991)

Czech Statistical Office Census 2001 (2001)

Czech Statistical Office Census 2011 (2011)

Czech Statistical Office Interregional Comparison (2017) https://www.czso.cz/csu/xb/mezikrajske_srovnani

CzechInvest Research Study for the Location of Brownfields. [online] Ministry of Industry and Trade (2007) Available at: http://www.brownfieldy.org/about-project/#research-study

CzechInvest National Strategy for Brownfields Regeneration of the Czech Republic [online] Ministry of Industry and Trade (2008) Available at: http://www.czechinvest.org/data/files/strategie-regenerace-vlada-1079.pdf

Databáze brownfields, 2015. http://podnikatel.kr-moravskoslezsky.cz/databaze_brownfields.html.

T.S. Davis Brownfields: A Comprehensive Guide to Redeveloping Contaminated Property American Bar Association (2002) 1077 p

C.H.A. De Sousa Brownfield redevelopment in Toronto: an examination of past trends and future prospects Land Use Policy, 19 (4) (2002), pp. 297-309

C.H.A. De Sousa Turning brownfields into green space in the City of Toronto Landscape Urban Plann., 62 (February (4)) (2003), pp. 181-198

A. Durnova A tale of ‘fat cats’ and ‘stupid activists’: contested values, governance and reflexivity in the brno railway station controversy J. Environ. Policy Plann. (2013), pp. 1-17, 10.1080/1523908X.2013.829749

B. Enengel, A. Muhar, M. Penker, B. Freyer, S. Drlik, F. Ritter Co-production of knowledge in transdisciplinary doctoral theses on landscape development—an analysis of actor roles and knowledge types in different research phases Landscape Urban Plann., 30 (2012), pp. 106-117

A.P. Fernández-Getino, A.C. Duarte Soil management guidelines in Spain and Portugal related to EU Soil Protection Strategy based on analysis of soil databases CATENA, 126 (March) (2015), pp. 146-154

N. Fligstein, D. McAdam Toward a general theory of strategic action fields Sociol. Theory, 29 (2011), pp. 1-26, 10.1111/j.1467-9558.2010.01385.x

B. Frantál, J. Kunc, E. Nováková, P. Klusáček, S. Martinát, R. Osman Location matters! Exploring brownfields regeneration in a spatial context (a case study of the south moravian region: Czech Republic) Moravian Geogr. Rep., 21 (2) (2013), pp. 5-19

B. Frantál, J. Kunc, P. Klusáček, S. Martinát Assessing success factors of brownfields regeneration: inter-national and inter-stakeholder perspective Transylvanian Rev. Admin. Sci., 44E (2015), pp. 91-107

B. Frantál, B. Greer-Wootten, P. Klusáček, T. Krejčí, J. Kunc, S. Martinát Exploring spatial patterns of urban brownfields regeneration: the case of Brno, Czech Republic Cities, 44 (2015), pp. 9-18

B. Glumac, Q. Han, W. Schaefer, E. Van der Krabben Negotiation issues in forming public–private partnerships for brownfield redevelopment: applying a game theoretical experiment Land Use Policy, 47 (September) (2015), pp. 66-77

Growing and shrinking regions in Europe, 2013. [online] Available at: http://www.bbsr.bund.de/BBSR/EN/SpatialDevelopment/SpatialDevelopmentEurope/AnalysesSpatialDevelopment/Projects/growing_shrinking/growing_shrinking.html?nn=392744.

J. Hackworth The limits to market-based strategies for addressing land abandonment in shrinking American cities Prog. Plann., 90 (2014), pp. 1-37

P.G. Hall, U. Pfeiffer Urban Future 21: A Global Agenda for Twenty-first Century Cities Taylor & Francis (2000) 363 p

Interaktivní tabulka Brownfieldů, 2015. https://dycham.ostrava.cz/brownfields/tabulka.php.
Invest-UK, 2015. http://invest-uk.cz/nabidky/.

Investiční příležitosti v Královéhradeckém kraji, 2015. http://mapy.kr-kralovehradecky.cz/prumzony/.

Investiční příležitosti v kraji, 2013. http://mapy.kr-plzensky.cz/gis/investicni_prilezitosti/.

Investiční příležitosti ve Středočeském kraji, 2015. http://www.kr-stredocesky.cz/web/regionalni-rozvoj/investicni-prilezitosti.

Investujte v Jihočeském kraji, 2010. http://invest.kraj-jihocesky.cz/cz/page/brownfields.

P. Klusáček, T. Krejčí, J. Kunc, S. Martinát, E. Nováková Post-industrial landscape in the relation to local self-governmnet in the Czech Republic Moravian Geogr. Rep., 19 (4) (2011), pp. 18-28 ISSN 1210–8812

P. Klusáček, T. Krejčí, S. Martinát, J. Kunc, R. Osman, B. Frantál Regeneration of agricultural brownfields in the Czech Republic – case study of the Czech Republic Acta Univ. Agric. Silvic. Mendel. Brun., 61 (2) (2013), pp. 549-561

P. Klusáček, M. Havlíček, P. Dvořák, J. Kunc, S. Martinát, P. Tonev From wasted land to megawatts: how to convert brownfields into solar power plants (the case of the Czech Republic) Acta Univ. Agric. Silvic. Mendel. Brun., 62 (3) (2014), pp. 517-528

P. Klusáček, B. Frantál, J. Kunc, S. Martinat, R. Osmar, A. Zabeo, L. Cosmo, F. Alexandrescu, C. Brückmann, S. Bartke, M. Finkel, M. Morio, P. Pizzol, J. Krupanek, A. Homuth, T. Sileam Prioritization Tool: Results of Demonstration Studies and Outreach Material. TIMBRE Deliverable D3.3 Version 4 (2014) 138p.

M.E. Koopmans, D. Keech, L. Sovova, M. Reed Urban agriculture and place-making: narratives about place and space in Ghent, Brno and Bristol Moravian Geogr. Rep., 25 (3) (2017), pp. 154-165

E. Kovács, V. Fabók, A. Kalóczkai, H.P. Hansen Towards understanding and resolving the conflict related to the Eastern Imperial Eagle (*Aquila heliaca*) conservation with participatory management planning Land Use Policy, 54 (2016), pp. 158-168, 10.1016/j.landusepol.2016.02.011
ISSN 0264-8377

R. Krzysztofik, M. Tkocz, T. Sporna, I. Kantor-Pietraga Some dilemmas of post-industrialism in a region of traditional industry: the case of the Katowice conurbation, Poland Moravian Geogr. Rep., 24 (1) (2016), pp. 42-54

J. Kunc, S. Martinát, P. Tonev, B. Frantál Destiny of urban brownfields: spatial patterns and perceived consequences of post-socialistic deindustrialization Transylvanian Rev. Admin. Sci., 41E (2014), pp. 109-128

F. Lieberherr-Gardiol Urban sustainability and governance: issues for the twenty-first century Int. Social Sci. J., 59 (2008), pp. 331-342, 10.1111/j.1468-2451.2009.01670.x

J. Linn The effect of voluntary brownfields programs on nearby property values: evidence from Illinois J. Urban Econ., 78 (2013), pp. 1-18

Y. Liu, F. van Oort, S. Geertman, Y. Lin Institutional determinants of brownfield formation in Chinese cities and urban villages Habitat Int., 44 (2014), pp. 72-78

MPSV Integrated Portal (2015)

S. Martinát, J. Navrátil, P. Dvořák, P. Klusáček, M. Kulla, J. Kunc, M. Havlíček The expansion of coal mining in the depression areas – a way to development? Human Geogr., 8 (1) (2014), pp. 5-15

S. Martinát, J. Navrátil, K. Picha, K. Turečková, P. Klusáček Brownfield regeneration from the perspective of residents: place cirmustances versus character of respondents Deturope, 9 (2) (2017), pp. 71-92

M.K. McCall, C.H.E. Dunn Geo-information tools for participatory spatial planning: fulfilling the criteria for 'good' governance? Geoforum, 43 (1) (2012), pp. 81-94, 10.1016/j.geoforum.2011.07.007
ISSN 0016-7185

Metropolitní plán Potenciál, Priority a Flexibilita [online] (2014) Available at:
http://plan.iprpraha.cz/uploads/assets/metropolitni-plan/400_Potencial_priority_a_flexibilita.pdf

M. Nastran, H. Regina Advancing urban ecosystem governance in Ljubljana Environ. Sci. Policy, 62 (2016), pp. 123-126, 10.1016/j.envsci.2015.06.003 ISSN 1462-9011

National database of brownfields, 2015. http://www.brownfieldy.org/brownfields-list/.

National strategy of brownfields regeneration CzechInvest, [online] (2008) Available at:
http://www.czechinvest.org/data/files/strategie-regenerace-vlada-1079.pdf

J. Navrátil, T. Krejčí, S. Martinát, M.J. Pasqualetti, P. Klusáček, B. Frantál, K. Tocháčková Brownfields do not "only live twice'': The possibilities for heritage preservation and the enlargement of leisure time activities in Brno, the Czech Republic Cities (2017), 10.1016/j.cities.2017.11.003
ISSN 0264-2751

F. Ortiz-Moya Coping with shrinkage: rebranding post-industrial Manchester Sustain. Cities Soc., 15 (2015), pp. 33-41

R. Osman, B. Frantál, P. Klusáček, J. Kunc, S. Martinát Factors affecting brownfield regeneration in post-socialist space: the case of the Czech Republic Land Use Policy, 48 (2015), pp. 309-316

R. Osman Co dělat, když se z Perly stane brownfield? [online] (2014) Available at: http://www.scmagazine.cz/article/view/156

M. Ouředníček Differential suburban development in the Prague urban region Geografiska Annaler Ser. B: Human Geogr., 89 (2) (2007), pp. 111-126

Park Čtyři dvory 2014: [online] Available at: http://www.c-budejovice.cz/cz/rozvoj-mesta/park-ctyri-dvory/stranky/fotodokumentace-vystavby-parku-ctyri-dvory-2013-2014.aspx.

W. Peerapun Participatory planning in urban conservation and regeneration: a case study of Amphawa community Procedia – Social Behav. Sci., 36 (2012), pp. 243-252, 10.1016/j.sbspro.2012.03.027 ISSN 1877-0428

L. Pizzol, A. Critto, P. Agostini, A. Marcomini Regional risk assessment for contaminated sites Part 2: ranking of potentially contaminated sites Environ. Int., 37 (2011), pp. 1307-1320

L. Pizzol, A. Zabeo, P. Klusáček, E. Giubilato, A. Critto, B. Frantál, S. Martinát, J. Kunc, R. Osman, S. Bartke Timbre Brownfield prioritization tool to support effective brownfield regeneration J. Environ. Manage., 116 (2016), pp. 178-192, 10.1016/j.jenvman.2015.09.030

RRA Vysočina, 2015. http://www.rrav.cz/investori/brownfields.html.

E.L. Rall, D. Haase Creative intervention in a dynamic city: a sustainability assessment of an interim use strategy for brownfields in Leipzig, Germany Landscape Urban Plann., 100 (April (3)) (2011), pp. 189-201

Recommendation CM/Rec, 2007. Council of Europe, [online] Available at: https://wcd.coe.int/ViewDoc.jsp?id=1155877.

E. Rizzo, M. Pesce, L. Pizzol, F.M. Alexandrescu, E. Giubilato, A. Critto, A. Marcomini, S. Bartke Brownfield regeneration in Europe: identifying stakeholder perceptions, concerns, attitudes and information needs Land Use Policy, 48 (2015), pp. 437-453

E. Rizzo, P. Bardos, L. Pizzol, A. Critto, E. Giubilato, A. Marcomini, C. Ambano, D. Darmendrail, G. Döberl, M. Harclerode, N. Harries, P. Nathanail, C. Pachon, A. Rodriguez, H. Slenders, G. Smith Comparison of international approaches to sustainable remediation J. Environ. Manage., 184 (2016), pp. 4-17

P. Rumpel, O. Slach Je Ostrava „smršťujícím se městem? Sociologický časopis, 48 (5) (2012), pp. 859-878

S. Safransky Greening the urban frontier: race, property, and resettlement in Detroit Geoforum, 56 (2014), pp. 237-248

I.D. Sardinha, D. Craveiro, S. Milheiras A sustainability framework for redevelopment of rural brownfields: stakeholder participation at SÃO DOMINGOS mine, Portugal J. Clean. Prod., 57 (2013), pp. 200-208

I.C. Stezar, L. Pizzol, A. Critto, A. Ozunu, A. Marcomini Comparison of risk-based decision-support systems for brownfield site rehabilitation: DESYRE and SADA applied to a Romanian case study J. Environ. Manage., 131 (2013), pp. 383-393

M. Stojanovska, M. Miovska, J. Jovanovska, V. Stojanovski The process of forest management plans preparation in the Republic of Macedonia: does it comprise governance principles of participation, transparency and accountability? For. Policy Econ., 49 (2014), pp. 51-56, 10.1016/j.forpol.2013.10.003 ISSN 1389–9341

K. Stoker Governance as theory: five propositions Int. Social Sci., 50 (155) (1998), pp. 17-28, 10.1111/1468-2451.00106

Suburbanization and social infrastructure, 2012. [online] Available from: http://www.atlasobyvatelstva.cz/cs/13-2-suburbanizace.

J. Tintěra, A. Ruus, E. Tohvri, Z. Kotval Urban brownfields in Estonia: scope, consequences and redevelopment barriers as percieved by local governments Moravian Geogr. Rep., 22 (4) (2014), pp. 25-38

UNESCAP What Is Good Governance? [online] (2009) Available from: http://www.unescap.org/sites/default/files/good-governance.pdf

Valencia Declaration, 2007. [online] available from: https://rm.coe.int/1680701699.

B. Vojvodíková, D. Vojkovská, B. Macecková Brownfields in the area of small municipalities. International Multidisciplinary Scientific GeoConference SGEM: Surv. Geol. Min. Ecol. Manage., 1 (2013), p. 155

A. Zabeo, L. Pizzol, P. Agostini, A. Critto, S. Giove, A. Marcomini Regional risk assessment for contaminated sites part 1: vulnerability assessment by multicriteria decision analysis Environ. Int., 37 (2011), pp. 1295-1306